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## **CLAIMS**

What is claimed is:

- 1. An isolated nucleic acid fragment encoding a calcium dependent phosphorylase kinase comprising a member selected from the group consisting of:
  - (a) an isolated nucleic acid fragment encoding an amino acid sequence of at least 100 contigous amino acids that is at least 90% identical to the amino acid sequence set forth in a member selected from the group consisting of SEQ ID NO:2, 6 and 8;
  - (b) an isolated nucleic acid fragment that is complementary to (a).
- 2. The isolated nucleic acid fragment of Claim 1 wherein nucleic acid fragment is a functional RNA.
- 3. The isolated nucleic acid fragment of Claim 1 wherein the nucleotide sequence of the fragment comprises the sequence set forth in a member selected from the group consisting of SEQ ID NO:1, 5 and 7.
- 4. A chimeric gene comprising the nucleic acid fragment of Claim 1 operably linked to suitable regulatory sequences.
  - 5. A transformed host cell comprising the chimeric gene of Claim 4.
- 6. A calcium dependent phosphorylase kinase polypeptide comprising the amino acid sequence set forth in a member selected from the group consisting of SEQ ID NO:2, 6 and 8.
- 7. An isolated nucleic acid fragment encoding a calcium dependent phosphorylase kinase comprising a member selected from the group consisting of:
  - (a) an isolated nucleic acid fragment encoding the amino acid sequence set forth in SEQ ID NO:4;
  - (b) an isolated nucleic acid fragment that is complementary to (a).
- 8. The isolated nucleic acid fragment of Claim 7 wherein nucleic acid fragment is a functional RNA.
- 9. The isolated nucleic acid fragment of Claim 7 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:3.
- 10. A chimeric gene comprising the nucleic acid fragment of Claim 7 operably linked to suitable regulatory sequences.
  - 11. A transformed host cell comprising the chimeric gene of Claim 10.
- 12. A calcium dependent phosphorylase kinase polypeptide comprising the amino acid sequence set forth in SEQ ID NO:4.
- 13. An isolated nucleic acid fragment encoding a glycogen synthase kinase comprising a member selected from the group consisting of:
  - (a) an isolated nucleic acid fragment encoding an amino acid sequence of at least 400 amino acids that is at least 90% identical to the amino acid

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sequence set forth in a member selected from the group consisting of SEO ID NO:10 and 16;

- (b) an isolated nucleic acid fragment that is complementary to (a).
- 14. The isolated nucleic acid fragment of Claim 13 wherein nucleic acid fragment is a functional RNA.
  - 15. The isolated nucleic acid fragment of Claim 13 wherein the nucleotide sequence of the fragment comprises the sequence set forth in a member selected from the group consisting of SEQ ID NO:9 and 15.
  - 16. A chimeric gene comprising the nucleic acid fragment of Claim 13 operably linked to suitable regulatory sequences.
    - 17. A transformed host cell comprising the chimeric gene of Claim 16.
  - 18. A glycogen synthase kinase polypeptide comprising all or a substantial portion of the amino acid sequence set forth in a member selected from the group consisting of SEQ ID NO:10 and 16.
  - 19. An isolated nucleic acid fragment encoding a glycogen synthase kinase comprising a member selected from the group consisting of:
    - (a) an isolated nucleic acid fragment encoding an amino acid sequence of at least 105 contigous amino acids that is at least 80% identical to the amino acid sequence set forth in SEQ ID NO:12;
    - (b) an isolated nucleic acid fragment that is complementary to (a).
- 20. The isolated nucleic acid fragment of Claim 19 wherein nucleic acid fragment is a functional RNA.
- 21. The isolated nucleic acid fragment of Claim 19 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:11.
- 22. A chimeric gene comprising the nucleic acid fragment of Claim 19 operably linked to suitable regulatory sequences.
  - 23. A transformed host cell comprising the chimeric gene of Claim 22.
- 24. A glycogen synthase kinase polypeptide comprising the amino acid sequence set forth in SEO ID NO:12.
- 25. An isolated nucleic acid fragment encoding a glycogen synthase kinase comprising a member selected from the group consisting of:
  - (a) an isolated nucleic acid fragment encoding the amino acid sequence set forth in SEQ ID NO:14;
  - (b) an isolated nucleic acid fragment that is complementary to (a).
- 26. The isolated nucleic acid fragment of Claim 25 wherein nucleic acid fragment is a functional RNA.
  - 27. The isolated nucleic acid fragment of Claim 25 wherein the nucleotide sequence of the fragment comprises the sequence set forth in SEQ ID NO:13.

- 28. A chimeric gene comprising the nucleic acid fragment of Claim 25 operably linked to suitable regulatory sequences.
  - 29. A transformed host cell comprising the chimeric gene of Claim 28.
- 30. A glycogen synthase kinase polypeptide comprising the amino acid sequence5 set forth in SEQ ID NO:14.